

WHAT IS CLAIMED IS:

1. An image processing apparatus for processing a plurality of colors of image data that form an image, comprising:

5 a buffer memory;

a memory controller for writing the plurality of colors of image data in said buffer memory in units of lines and in a predetermined color order, and reading out the plurality of colors image data written in said
10 buffer memory; and

an image processor for processing the plurality of colors of image data read out by said memory controller,

wherein said buffer memory has a plurality of
15 blocks which are virtually broken up into a matrix pattern, and

said memory controller switches operation for writing the plurality of colors of image data in the blocks that belong to corresponding rows, and operation
20 for writing the plurality of colors of image data in the blocks that belong to corresponding columns in units of lines, and reads out old image data from a region of said buffer memory in which new image data are expected to be overwritten before the new image are
25 overwritten by the write operation.

2. The apparatus according to claim 1, wherein said
buffer memory is virtually broken up into rows, the
number of which is equal to the number of colors, and
rows, the number of which is equal to the number of
5 colors.

3. The apparatus according to claim 2, wherein the
plurality of image data include R, G, and B data, and
said buffer memory is virtually broken up into 3 rows ×
3 columns.

10 4. The apparatus according to claim 1, wherein said
memory controller writes the image data in each block
in turn from a head position thereof, and reads out the
image data from the block in turn from the head
position thereof.

15 5. The apparatus according to claim 1, wherein the
plurality of image data are R, G, and B data, and said
image processor generates output image data by
simultaneously referring to the R, G, and B data.

6. The apparatus according to claim 1, wherein the
20 plurality of image data are R, G, and B data, and said
image processor executes a process for converting the R,
G, and B data into C, M, Y, and K data, and a masking
process.

7. The apparatus according to claim 1, wherein said
25 image processor processes the plurality of colors of
image data read out by said memory controller within a

period which has the same duration as a period in which said memory controller writes the plurality of colors of image data for one line in said buffer memory.

8. The apparatus according to claim 1, further

5 comprising a read sensor for reading an image in units of lines and in a predetermined color order, and wherein said memory controller writes image data which have been output from said read sensor and have undergone a predetermined process in said buffer memory.

10 9. The apparatus according to claim 1, wherein said image processor processes image data for a previous line stored in said buffer memory during a period in which a read sensor reads an image for one line.

10. The apparatus according to claim 1, further
15 comprising an output unit for outputting image data processed by said image processor.

11. An image processing method for processing a plurality of colors of image data that form an image, comprising:

20 the memory control step of writing the plurality of colors of image data in a buffer memory in units of lines and in a predetermined color order, and reading out the plurality of colors image data written in the buffer memory; and

the image processing step of processing the plurality of colors of image data read out in the memory control step,

wherein the buffer memory has a plurality of
5 blocks which are virtually broken up into a matrix pattern, and

the memory control step includes the step of switching operation for writing the plurality of colors of image data in the blocks that belong to
10 corresponding rows, and operation for writing the plurality of colors of image data in the blocks that belong to corresponding columns in units of lines, and reading out old image data from a region of the buffer memory in which new image data are expected to be
15 overwritten before the new image data are overwritten by the write operation.

12. The method according to claim 11, wherein the buffer memory is virtually broken up into rows, the number of which is equal to the number of colors, and
20 rows, the number of which is equal to the number of colors.

13. The method according to claim 12, wherein the plurality of image data include R, G, and B data, and said buffer memory is virtually broken up into 3 rows x
25 3 columns.

14. The method according to claim 11, wherein the memory control step includes the step of writing the image data in each block in turn from a head position thereof, and reading out the image data from the block in turn from the head position thereof.

15. The method according to claim 11, wherein the plurality of image data are R, G, and B data, and the image processing step includes the step of generating output image data by simultaneously referring to the R, G, and B data.

16. The method according to claim 11, wherein the plurality of image data are R, G, and B data, and the image processing step includes the step of executing a process for converting the R, G, and B data into C, M, Y, and K data, and a masking process.

17. The method according to claim 11, wherein the image processing step includes the step of processing the plurality of colors of image data read out from the buffer memory within a period which has the same duration as a period in which the plurality of colors of image data for one line are written in the buffer memory.

18. The method according to claim 11, wherein the memory control step includes the step of writing image data which have been output from a read sensor and have undergone a predetermined process in the buffer memory.

19. The method according to claim 11, wherein the image processing step includes the step of processing image data for a previous line stored in the buffer memory during a period in which a read sensor reads an
5 image for one line.

20. The method according to claim 11, further comprising the output step of outputting image data processed in the image processing step.

21. A memory medium that stores software for
10 processing a plurality of colors of image data that form an image, said software including:

the memory control step of writing the plurality of colors of image data in a buffer memory in units of lines and in a predetermined color order, and reading
15 out the plurality of colors image data written in the buffer memory,

wherein the buffer memory has a plurality of blocks which are virtually broken up into a matrix pattern, and

20 the memory control step includes the step of switching operation for writing the plurality of colors of image data in the blocks that belong to corresponding rows, and operation for writing the plurality of colors of image data in the blocks that
25 belong to corresponding columns in units of lines, and reading out old image data from a region of the buffer

memory in which new image data are expected to be
overwritten before the new image data are overwritten
by the write operation.